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10/598,309	08/12/2008	Joerg Bredno	2004P00573WOUS	2583

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EXAMINER	
LY, CHEYNE D	

ART UNIT	PAPER NUMBER
2168	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/598,309	BREDNO, JOERG	
	Examiner	Art Unit	
	CHEYNE LY	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-8* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-8* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments filed November 14, 2011 have been fully considered but they are not persuasive. On pages 3-5, Applicant argues neither Biswal, Jesmanowicz, or Poliakov discloses the limitation of adjusting the primary parameter set on the basis of a user input, the adjusting being within a predetermined range. Further, Applicant asserts the entering of a reference pattern is an input, but this input is not an adjustment of a primary parameter on which embodiment 1 was based. Applicant's argument is not persuasive because as cited Jesmanowicz discloses neurologist may input a reference pattern or select as a reference pattern the time varying NMR data for one voxel which is observed to follow the selected stimulation pattern. The degree of correlation between the selected reference pattern and the time varying NMR signals for each of the other voxels in the MRI data set is then calculated and the results displayed as a brain function image. In voxel locations where the correlation is high, brain activity is high and where it is low there is little or no correlation. The resulting brain function image may be superimposed on the anatomical image as variations in brightness or color (column 3, lines 1-18). Further, Jesmanowicz discloses the display process is performed by programs executed in the image processor 106 and in response to commands received from the operator. The images are produced as separate windows on the video display 118 and a cursor in each window may be manipulated using a track ball on the control panel 103. The display process will now be described with reference to the flow chart of FIG. 6…it is sufficient to enable a neurologist to accurately place a cursor 316 over the area in the brain to be examined. As indicated by decision block 317, the operator then chooses between time domain and frequency domain data. If time domain data is selected the operator then sets the desired size of

the cursor 316 at process block 318 and the time domain graphs for the voxels enclosed by the cursor 316 are displayed in a separate window of the video display 118 as indicated at process block 319. Such a display for a 3.times.3 voxel patch is shown in FIG. 5B, where each of the nine squares contains a plot of a corresponding time domain voxel vector. In this example, the cyclic pattern apparent in the center voxel corresponds in frequency to the repetitive application of a smell stimulation to the subject. Notice that some of the adjacent voxels also display this pattern and some do not, and that this is quite easy to determine. The areas of the brain which function in response to a stimulant are thus easy to see. The number of voxels enclosed by the cursor 316 is adjustable and may vary from 1 to 100 (column 11, line 64, column 12, line 22). The citation above supports that the acquired data (primary parameter) is adjustable as claimed to achieve the same expected results as the claimed invention.

2. Further, Applicant argues one of ordinary skill in the art would understand that the disclosure of Poliakov is well known in the art and is common to most 3D modeling programs. That is, the manipulation of a volume (e.g. identifying cut planes, making a certain volume transparent, etc.) is well known. It seems the Examiner has taken the cited portion of claim 1 out of context. Claim 1, as a whole, allows the user to adjust the primary parameter, on which a primary result is determined, to determine a secondary result. Modifying the different views and defining cut planes in a 3D object is not the same as adjusting a primary parameter. It is noted that Jesmanowicz has been cited to disclose the limitation of adjusting the primary parameter set on the basis of an input…reprocessing the primary data on the basis of the adjusted primary parameter set to determine a secondary result; and displaying the secondary result. Further, Poliakov has been cited to specify the

adjusting…on the basis of a user input, the adjusting being within a predetermined range. The citation of the prior art reasonably describes the argued limitation of adjusting…on the basis of a user input, the adjusting being within a predetermined range because nowhere in the specification does Applicant define either the primary data or the secondary result to be distinct from the data disclosed by Biswal, Jesmanowicz, or Poliakov. Therefore, one of ordinary skill in the art would reasonably interpret that the data manipulated by Biswal, Jesmanowicz, or Poliakov reasonably describe the argued limitation of either the primary data or the secondary result.

3. Claims 1-8 are examined on the merits.

CLAIM REJECTIONS - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biswal et al. (Biswal hereafter, US 6,477,399 B2) taken with Poliakov et al. (Poliakov hereafter).

6. The citation of Jesmanowicz et al. ('322 hereafter) has been cited as incorporated by reference by Biswal (column 2, lines 26-38, e.g. For a more detailed description of the preferred correlation method, reference is made to the above-cited U.S. Pat. No. 5,603,322 which is incorporated herein by reference. The correlation magnitudes that result are scaled to a range of 0 to 1.0. These correlation values may be used to modulate the brightness or color of pixels as described above to indicate brain activity. The present invention is an improvement in which the confidence level is calculated for the correlation values before they are used to indicate brain activity).

7. In regard to claim 1, Biswal discloses a method of computer-aided extraction of quantitative information, the method comprising the steps of:

8. acquiring primary data from an object to be examined (column 2, line 28, e.g. acquiring an fMRI data set);

9. processing the primary data on the basis of a primary parameter set to determine a primary result (column 2, lines 30-35, e.g. fMRI parameter);

10. determining a confidence interval with respect to the primary result (column 2, lines 30-35, e.g. confidence level);

11. displaying the primary result and the confidence interval (column 4, lines 62-67, e.g. confidence level numbers may simply be displayed along with an indication of their associated fMRI image voxels);

12. adjusting the primary parameter set on the basis of an input (column 3, lines 1-18, e.g. neurologist may input a reference pattern or select as a reference pattern the time varying NMR data for one voxel which is observed to follow the selected stimulation pattern. The degree of correlation between the selected reference pattern and the time varying NMR signals for each of the other voxels in the MRI data set is then calculated and the results displayed as a brain function image. In voxel locations where the correlation is high, brain activity is high and where it is low there is little or no correlation. The resulting brain function image may be superimposed on the anatomical image as variations in brightness or color);

13. reprocessing the primary data on the basis of the adjusted primary parameter set to determine a secondary result; and displaying the secondary result (column 3, lines 1-18, e.g. neurologist may input a reference pattern or select as a reference pattern the time varying NMR data for one voxel which is observed to follow the selected stimulation pattern. The degree of correlation between the selected reference pattern and the time varying NMR signals for each of the other voxels in the MRI data set is then calculated and the results displayed as a brain function image. In voxel locations where the correlation is high, brain activity is high and where it is low there is little or no correlation. The resulting brain function image may be superimposed on the anatomical image as variations in brightness or color).

14. However, Biswal does not disclose the adjusting…on the basis of a user input, the adjusting being within a predetermined range. Poliakov disclose a Web visualization approach that could potentially improve clinical diagnosis (page 536, column 1, paragraph 3). Further, The user has loaded one of the fMRI volumes, which is used to brighten the color of the 3-D brain model in areas of fMRI activation, and has adjusted the Axial, Sagittal and Coronal sliders

shown in figure 3 These sliders select three cutting planes, which are sent to the server to mask out a segment of the 3-D brain surface model (page 535, columns 1-2, Java-based applet). One of ordinary skill in the art at the time of the invention would have been motivated by Poliakov to improve the method of Biswal with a Web visualization approach that could potentially improve clinical diagnosis. Therefore, it would have been obvious to one of ordinary skill in the art to use the method of Biswal with the Web visualization approach of Poliakov to allow users to adjust the fMRI parameters to potentially improve clinical diagnosis.

15. In regard to claim 2, Biswal in view of Poliakov discloses the primary parameter set comprises a plurality of parameters (column 2, lines 30-35, e.g. fMRI parameter); varying at least one parameter of the primary parameter set (column 3, lines 1-18, e.g. neurologist may input a reference pattern or select as a reference pattern the time varying NMR data for one voxel which is observed to follow the selected stimulation pattern. The degree of correlation between the selected reference pattern and the time varying NMR signals for each of the other voxels in the MRI data set is then calculated and the results displayed as a brain function image. In voxel locations where the correlation is high, brain activity is high and where it is low there is little or no correlation. The resulting brain function image may be superimposed on the anatomical image as variations in brightness or color); adjusting the primary parameter set on the basis of the at least one parameter which is varied (column 3, lines 1-18, e.g. neurologist may input a reference pattern or select as a reference pattern the time varying NMR data for one voxel which is observed to follow the selected stimulation pattern. The degree of correlation between the selected reference pattern and the time varying NMR signals for each of the other voxels in the MRI data set is then calculated and the results displayed as a brain function image. In voxel

locations where the correlation is high, brain activity is high and where it is low there is little or no correlation. The resulting brain function image may be superimposed on the anatomical image as variations in brightness or color); and interactively reprocessing the primary data on the basis of the adjusted parameter set to determine the secondary result and displaying the secondary result (column 3, lines 1-18, e.g. neurologist may input a reference pattern or select as a reference pattern the time varying NMR data for one voxel which is observed to follow the selected stimulation pattern. The degree of correlation between the selected reference pattern and the time varying NMR signals for each of the other voxels in the MRI data set is then calculated and the results displayed as a brain function image. In voxel locations where the correlation is high, brain activity is high and where it is low there is little or no correlation. The resulting brain function image may be superimposed on the anatomical image as variations in brightness or color).

16. In regard to claim 3, Biswal in view of Poliakov discloses providing a distrust selection option to a user; and forwarding the primary data and the corresponding primary parameter set to a service port when the distrust selection option is selected by the user (page 535, column 2, 2nd paragraph).

17. In regard to claim 4, Biswal in view of Poliakov discloses providing a trust selection option to a user; and storing the primary parameter set in correspondence with the primary data when the trust selection option is selected by the user (page 535, column 2, 2nd paragraph).

18. In regard to claim 5, Biswal in view of Poliakov discloses comparing the primary diagnostic data to secondary data; deciding whether the primary data is comparable to any of the secondary data; reprocessing the primary data on the basis of a secondary parameter set

belonging to similar secondary data to determine a tertiary result; and displaying the tertiary result (column 3, lines 1-18, e.g. neurologist may input a reference pattern or select as a reference pattern the time varying NMR data for one voxel which is observed to follow the selected stimulation pattern. The degree of correlation between the selected reference pattern and the time varying NMR signals for each of the other voxels in the MRI data set is then calculated and the results displayed as a brain function image. In voxel locations where the correlation is high, brain activity is high and where it is low there is little or no correlation. The resulting brain function image may be superimposed on the anatomical image as variations in brightness or color).

19. In regard to claim 6, Biswal in view of Poliakov discloses, the method allows for an explorative determination of a dependability of at least one of the primary and secondary results (column 2, lines 30-35, e.g. confidence level).

20. In regard to claims 7 and 8, Biswal in view of Poliakov discloses a data processing device and program (column 5, lines 35-44, e.g. Tesla MRI system) for implementing the above cited method.

CONCLUSION

21. **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

22. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

23. Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

24. For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199. The USPTO's official fax number is 571-272-8300.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. Dune Ly, whose telephone number is (571) 272-0716. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

26. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo, can be reached on (571)272-3642.

/Cheyne D Ly/
Primary Examiner, Art Unit 2168